

APPENDIX B

DEFINITION OF EXPANDED ADJUSTED GROSS INCOME

Expanded adjusted gross income (EAGI) is the income measure used to classify tax returns in this report. It is based on the more standard tax-oriented definition of income, adjusted gross income (AGI). AGI is equal to the sum of income items (such as wages and salaries, interest, dividends, capital gains, and business income) less "adjustments to income" (such as the deduction for two-earner married couples, contributions to IRAs and self-employed retirement plans, and some employee business expenses). Portions of interest, dividend, and capital gains income are (or have been in different years) excluded from AGI, making AGI a less complete measure of income. Between 1980 and 1983, the definition of AGI changed for the following reasons:

- *Changes in the portion of dividends and interest excluded from AGI.* In 1980 and 1982-1983, \$100 (\$200 for a joint return) of dividends could be excluded; in 1981, \$200 (\$400 for a joint return) of interest and dividends combined could be excluded. In 1982 and 1983, interest paid on "All Savers Certificates" was also excluded, with a lifetime limit of \$1,000 (\$2,000 for a joint return);
- *Expansion of limits and eligibility requirements for contributions to IRA and self-employed retirement plans.* In 1980, IRA deductions were limited to 15 percent of annual compensation up to \$1,500 (plus \$250 for a non-working spouse) and were restricted to individuals who did not participate in a qualified employer pension, stock bonus, or other retirement plan. For 1982 and after, the limits were \$2,000 per employee (plus \$250 for a nonworking spouse) or 100 percent of compensation, and eligibility was extended to participants in employer plans;
- *In 1980 and 1981, contributions to self-employment retirement plans were limited to the lesser of \$7,500 or 15 percent of net earnings from self-employment.* In 1982 and later years, the deductible limit was increased to \$15,000 or 15 percent of net earnings from self-employment;
- *Creation of the deduction for two-earner married couples.* In 1982, the deduction was 5 percent of the qualified earned income, up to \$30,000, of the spouse with lower earnings; it was 10 percent for 1983 and later years.

Expanded AGI is defined as AGI plus the excluded portion of dividends (in 1980, 1982, and 1983) or the excluded portion of dividends and interest combined (in 1981), plus excluded interest paid on "All Savers Certificates" in 1982 and 1983,¹ plus the excluded portion of long-term capital gains in excess of short-term capital losses, plus the second-earner deduction (in 1982 and 1983), plus deductions for contributions to IRAs and self-employment retirement plans. Thus, the definition of EAGI is essentially constant for years 1980 to 1983.

EAGI is a more comprehensive measure of income than is AGI for two reasons: it includes income items that are excluded from AGI, and it does not exclude income used to make contributions to IRAs or self-employment retirement plans.

1. Though the "All Savers Certificates" were marketed in 1981 and 1982, the excluded interest was not reported until 1982 and 1983.

APPENDIX C

DERIVATION OF EQUATIONS IN CHAPTER II

Equation 2.4

Tax payments can be written as the product of the four terms on the right side of equation (2.3), repeated below. Equation (2.4) shows that the percentage growth of tax payments can be approximated by the sum of the growth rates of the four separate terms.

$$(2.3) \text{ Taxes} = (\text{Taxes}/\text{TY}) * (\text{TY}/\text{AGI}) * (\text{AGI}/\text{EAGI}) * \text{EAGI}$$

$$(2.4) \% \Delta \text{ in Taxes} = \% \Delta (\text{Tax}/\text{TY}) + \% \Delta (\text{TY}/\text{AGI}) + \% \Delta (\text{AGI}/\text{EAGI}) \\ + \% \Delta \text{ EAGI}$$

where

Δ = Change

TY = Taxable Income

AGI = Adjusted Gross Income

EAGI = Expanded Adjusted Gross Income

The sum of the growth rates of separate terms in equation (2.4), or any variable that is expressed as a product of other variables, does not exactly sum to total growth because of omitted cross-product terms. This can be illustrated with an equation with two terms in the product.

Let A be the product of the two terms, B and C:

$$(C.1) \quad A = B * C$$

Then a change in A equals a change in the product:

$$(C.2) \quad \Delta A = \Delta(B * C), \\ = B\Delta C + C\Delta B + \Delta B\Delta C$$

where Δ = a change

The percentage change in A can be expressed as follows:

$$\begin{aligned}
 (C.3) \% \Delta A &= \frac{\Delta A}{A} = \frac{B \Delta C + C \Delta B + \Delta B \Delta C}{B * C} \\
 &= \frac{\Delta C}{C} + \frac{\Delta B}{B} + \frac{\Delta B \Delta C}{BC} \\
 &= \% \Delta C + \% \Delta B + (\% \Delta B * \% \Delta C)
 \end{aligned}$$

Clearly, the percentage change in A includes the cross-product term ($\% \Delta B * \% \Delta C$). However, this term becomes very small as the percentage changes in B and C become smaller. Thus, the percentage change in A can be approximated as the sum of the percentage changes in B and C.

Several cross product terms are omitted in equation (2.4) above. The cross-product terms are shown below in equation (C.4).

$$\begin{aligned}
 (C.4) \% \Delta \text{Taxes} &= (\% \Delta \text{Tax}/\text{TY}) + (\% \Delta \text{TY}/\text{AGI}) + (\% \Delta \text{AGI}/\text{EAGI}) + \\
 &\quad (\% \Delta \text{EAGI}) + \\
 &\quad (\% \Delta \text{Tax}/\text{TY}) * (\% \Delta \text{TY}/\text{AGI}) + (\% \Delta \text{Tax}/\text{TY}) * \\
 &\quad (\% \Delta \text{AGI}/\text{EAGI}) + \% \Delta (\text{TAX}/\text{TY}) * (\% \Delta \text{EAGI}) + \\
 &\quad (\% \Delta \text{TY}/\text{AGI}) * (\% \Delta \text{AGI}/\text{EAGI}) + (\% \Delta \text{TY}/\text{AGI}) * \\
 &\quad (\% \Delta \text{EAGI}) + (\% \Delta \text{Tax}/\text{TY}) * (\% \Delta \text{TY}/\text{AGI}) * \\
 &\quad (\% \Delta \text{AGI}) * (\% \Delta \text{EAGI})
 \end{aligned}$$

Equation (2.4) can be used as an approximation of equation (C.4) because the cross-product terms are very small compared to the other terms in the equation. This approximation is much more exact for small percentage changes in the separate terms than for large changes.

Equation 2.6

The derivation of equation (2.6) is shown below. First, equation (C.5) shows EAGI written as the sum of its components (only three of the components are shown here). Equation (C.6) shows that the change in EAGI between 1980 and 1983 can be written as the sum of the changes in the components of EAGI during these years. In equation (C.7), each side is divided by EAGI; equation (C.8) is written so that each term on the right is divided by EAGI. Equation (C.8) can be rewritten to show that the percentage growth of EAGI is equal to the weighted percentage growth rates of each of the components, shown in equation (C.9). Note that each term on the right side of equation (C.8) has been multiplied by one (for example wages/wages) so that the equality still

holds. Rearranging terms gives the weighted growth rates shown in equation (2.6), repeated below.

$$(C.5) \text{ EAGI} = \text{Wages} + \text{Interest} + \text{Dividends} + \dots$$

$$(C.6) \Delta \text{ EAGI} = \Delta \text{ Wages} + \Delta \text{ Interest} + \Delta \text{ Dividends} + \dots$$

$$(C.7) \frac{\Delta \text{ EAGI}}{\text{EAGI}} = \frac{\Delta \text{ Wages} + \Delta \text{ Interest} + \Delta \text{ Dividends} + \dots}{\text{EAGI}}$$

$$(C.8) \frac{\Delta \text{ EAGI}}{\text{EAGI}} = \frac{\Delta \text{ Wages}}{\text{EAGI}} + \frac{\Delta \text{ Interest}}{\text{EAGI}} + \frac{\Delta \text{ Dividends}}{\text{EAGI}} + \dots$$

$$(C.9) \% \Delta \text{ EAGI} = \frac{\Delta \text{ Wages}}{\text{Wages}} * \frac{\text{Wages}}{\text{EAGI}} + \frac{\Delta \text{ Interest}}{\text{Interest}} * \frac{\text{Interest}}{\text{EAGI}} + \dots$$

$$(2.6) \% \text{ EAGI} = ((\% \Delta \text{ Wages}) * (\text{Wages}/\text{EAGI})) + ((\% \Delta \text{ Interest}) * (\text{Interest}/\text{EAGI})) + \dots$$

APPENDIX D

CHANGES IN AGI/EAGI, TAXABLE INCOME/AGI, AND TAXES/TAXABLE INCOME

Chapter II describes the most significant component of growth in income taxes between 1980 and 1983, which is growth in EAGI. This appendix describes the other components, which are changes in three ratios: AGI/EAGI, taxable income/AGI, and taxes/taxable income.

AGI/EAGI

As noted above, EAGI is derived from AGI by adding back those items of income reported on tax returns that are excluded or deducted in the computation of AGI. These items are excluded capital gains, excluded dividends, IRA and self-employment retirement plan deductions, and the deduction for two-earner married couples.

In total, the ratio of AGI to EAGI declined by 3.3 percent between 1980 and 1983, mostly because of liberalization of the IRA deduction and introduction of the two-earner deduction, but also because taxpayers realized more capital gains. Increased realization of capital gains increases the proportion of EAGI that is excluded from AGI because of the 60-percent capital gains exclusion.

The percentage change in AGI/EAGI can be expressed as the sum of each component's contribution to the difference between AGI and EAGI by the equation:

$$\begin{aligned}(1) \quad \% \Delta (AGI/EAGI) = & - [\Delta(EXCL1/EAGI)]/(AGI/EAGI) \\ & - [\Delta(EXCL2/EAGI)]/(AGI/EAGI) \\ & - \dots\end{aligned}$$

where EXCL1, EXCL2, ... are items in EAGI that are excluded or deducted in computing AGI.

Table D-1 shows the contribution of different exclusions to the change in the ratio of AGI to EAGI between 1980 and 1983. In total, the ratio declined by 3.3 percent--of this decline, 1.4 percentage points is attributable to increased use of IRA deductions, 1.0 percentage point to the second earner deduction, and 0.9 percentage points to increases in realizations of capital gains. The components that explain the change in this ratio differ substantially among income groups. For the top percentile, the ratio declined by the largest percentage--6.9 percent--and was mostly due to increased realization of capital gains (5.8 percentage points). For all other groups, IRA deductions were the most important factor, followed by the two-earner deduction.

TABLE D-1. EXPLANATION OF PERCENTAGE CHANGE IN RATIO OF ADJUSTED GROSS INCOME (AGI) TO EXPANDED ADJUSTED GROSS INCOME (EAGI): 1980-1983 (In percent)						
Contribution to Percentage Change in Ratio of AGI to EAGI	Total	Expanded Adjusted Gross Income Group				
		Group 1 (1%)	Group 2 (2-5%)	Group 3 (6-25%)	Group 4 (26-50%)	Group 5 (51-95%)
Total	-3.3	-6.9	-4.2	-3.4	-1.9	-0.8
IRA Deductions	-1.4	-0.8	-2.4	-1.8	-1.0	-0.4
Keogh Deductions	*	-0.1	*	*	*	*
2nd Earner Deduction	-1.0	-0.2	-1.3	-1.6	-0.8	-0.2
Excluded Capi- tal Gains	-0.9	-5.8	-0.4	*	-0.1	-0.1
Excluded Divi- dend	*	*	*	*	*	*

NOTE: Separate items may not add up exactly to AGI because of rounding.

* Less than 0.05 percentage points.

(Taxable Income)/AGI

The ratio of taxable income to AGI depends on the level of personal exemptions and on the availability and use of itemized deductions, both relative to AGI. As shown above in Table II.3, Chapter II, the ratio of taxable income to AGI increased by 0.3 percent between 1980 and 1983. Thus, changes in this ratio had very little effect on changes in taxes paid. The ratio declined for the top three income groups, reflecting a decline in the size of the tax base relative to AGI, but increased for the bottom two income groups.

The two largest items that are deducted from AGI to compute taxable income are personal exemptions and, for itemizers, excess itemized deductions (total itemized deductions less the zero bracket amount). Thus, taxable income can be expressed approximately as:

$$(2) \quad TY = AGI - EX - EID$$

where

TY = taxable income

EX = personal exemptions

and EID = excess itemized deductions ¹

The percentage growth in the ratio of taxable income to AGI (TY/AGI) can be expressed as:

$$(3) \quad \% \Delta (TY/AGI) = - \% \Delta (EID/AGI) * (EID/TY) \\ - \% \Delta (EX/AGI) * (EX/TY) \quad ^2$$

Table D-2 shows the relative contributions of excess itemized deductions and personal exemptions to the changes in the ratio of taxable income to AGI for the five income groups between 1980 and 1983. For all the income groups, excess itemized deductions increased by a larger percentage than did AGI, and thus contributed to a lower ratio of taxable income to AGI. The contribution of greater excess itemized deductions to the decline in (TY/AGI) was largest for groups 2 (4.4 percentage points) and 3 (3.4 percentage points) and smallest for group 5 (1.8 percentage points). In the bottom group, in particular, relatively few taxpayers are itemizers. Thus, part of the reason that tax payments increased relatively less for the middle-income groups than for others was because of the rapid growth in excess itemized deductions for these groups.

The growth of exemptions, on the other hand, tended to raise the ratio of taxable income to AGI because the ratio of exemptions to AGI declined. This occurred because the personal exemption amount was unchanged in ERTA and TEFRA, thereby permitting its real value to erode with inflation. This especially affected the lower-income groups, for which exemptions are a relatively large fraction of AGI. The decline in the ratio of personal exemptions to AGI raised the ratio of taxable income to AGI by 3.8 percentage points in group 5, but only by 0.8 percentage points in group 1 and 1.3 percentage points in group 2.

1. Nonitemizers are also allowed a deduction for charitable contributions.

2. The derivation is similar to that described in Appendix C.

TABLE D-2. EXPLANATION OF PERCENTAGE CHANGE IN RATIO OF TAXABLE INCOME (TY) TO ADJUSTED GROSS INCOME (AGI): 1980-1983 (In percent)

Contribution to Percentage Change in (TY/AGI)	Total	Expanded Adjusted Gross Income Group				
		Group 1 (1%)	Group 2 (2-5%)	Group 3 (6-25%)	Group 4 (26-50%)	Group 5 (51-95%)
Total	0.3	-1.7	-3.0	-1.1	1.0	2.3
Excess Itemized Deductions	-3.1	-2.6	-4.4	-3.4	-2.1	-1.8
Exemptions	2.6	0.8	1.3	2.3	3.1	3.8

Because of the relatively larger effects of exemptions, and smaller effects of excess itemized deductions in the lower-income groups, the ratio of taxable income to AGI increased for groups 4 and 5. The reverse occurred for groups 1-3; the ratio of taxable income to AGI declined because of the relatively greater importance of the increase in excess itemized deductions for these groups.

Table D-3 shows the contributions of different specific deductions to the growth in itemized deductions between 1980 and 1983. During this period, itemized deductions increased by 42 percent. The two most important contributors to that growth were interest deductions (20.0 percentage points) and deductions for state and local taxes (14.0 percentage points). Medical deductions, however, contributed 23.2 percentage points to the growth in itemized deductions for group 5, though very little (and in some cases negatively) to the growth in itemized deductions for other groups.³

For the top percentile, itemized deductions increased slightly more than for all returns--43.5 percent, compared to 42.0 percent. Thus, the increase in the tax share paid by the top percentile between 1980 and 1983 was not a result

3. One possible explanation is that actual medical expenses increased substantially for all groups, but that deductions either declined or increased only slightly in Groups 1-4 because TEFRA raised the floor on itemized deductions for medical expenses from 3 percent of AGI to 5 percent of AGI. This might not have significantly affected lower-income itemizers who claim the medical deductions, because their medical expenses may have been far in excess of either a 3-percent or 5-percent floor.

It is also worth noting that total itemized deductions increased by the greatest percentage in group 5--74.0 percent. This increase, however, had little effect on the ratio of taxable income to AGI for group 5 because excess itemized deductions are such a small share of AGI for that group.

TABLE D-3. EXPLANATION OF PERCENTAGE CHANGE IN ITEMIZED
DEDUCTIONS, 1980-1983

Contribution to Percentage Change in Itemized Deductions	Total	Expanded Adjusted Gross Income Group				
		Group 1 (1%)	Group 2 (2-5%)	Group 3 (6-25%)	Group 4 (26-50%)	Group 5 (51-95%)
Total	42.0	43.5	38.6	38.1	42.3	74.0
Medical Deductions	1.4	-0.4	-1.0	-0.9	2.8	23.2
Interest Deductions	20.0	20.2	21.8	18.9	18.6	25.2
Taxes-Paid Deduction	14.0	14.1	12.3	14.5	13.9	15.6
Contributions Deduction	5.4	7.6	4.0	4.7	6.1	8.6

of a decline in the use of these deductions. The contribution of most of the individual deductions to the total growth in deductions was roughly the same for the top group as for other groups. Charitable deductions contributed more to the growth of itemized deductions for the top percentile than for the tax-paying population as a whole--7.6 percentage points, compared to 5.4 percentage points. This occurred because charitable contributions in 1980 were a relatively greater share of total deductions for the top group than for all taxpayers--20.9 percent compared to 11.8 percent. This resulted in a greater contribution of charitable deductions to the growth of itemized deductions in the top group, even though charitable deductions increased relatively less for the top group--by 36.2 percent, compared to a 46.0 percent increase for all tax-

payers. Thus, the data are consistent with the expectation that charitable contributions of the highest group might grow relatively more slowly if marginal tax rates were reduced.⁴

Taxes/(Taxable Income)

The ratio of taxes paid to taxable income measures the average tax rate. The average tax rate can change because of changes in marginal tax rates, tax credits, or minimum and maximum taxes, and also because of increases in income that move taxpayers into higher tax brackets. As seen in Table D.4, average tax rates declined between 1980 and 1983 by 9.3 percent, mostly because of the reduction in marginal rates in ERTA. Group 1 had a slightly smaller than average decline in the average tax rate (9.1 percent).

Table D-4 provides more detail on changes in taxable income, taxes paid, and the average tax rate between 1980 and 1983. While the ratio of taxes to taxable income declined by between 9 percent and 10 percent for all income groups over that period, the year-by-year pattern was very uneven. For the entire population, the average tax rate increased by 3 percent between 1980 and 1981, reflecting bracket creep in excess of the first stage of the ERTA rate cut, but then declined by slightly over 6 percent in 1982 and almost 6 percent more in 1983. For the top group, the tax rate increased by less than 1 percent in 1981, then declined by almost 8 percent in 1982 (when the top rate was lowered to 50 percent) and another 2 percent in 1983.

4. Many studies have shown that charitable deductions are higher at higher marginal tax rates, and that the effect of marginal tax rates on giving is especially larger for higher-income returns. For examples, see Gerald Auten and Gabriel Rudney, "Charitable Deductions and Tax Reform: New Evidence on Giving Behavior," in *Proceedings of the Annual Conference of the National Tax Association* (1984), pp. 73-81; Charles Clotfelter, *Federal Tax Policy and Charitable Giving*, National Bureau of Economic Research Monograph (Chicago: University of Chicago Press, 1985); and Charles Clotfelter and Eugene Steuerle, "Charitable Contributions" in Henry Aaron and Joseph Pechman, eds., *How Taxes Affect Economic Behavior* (Washington, D.C.: The Brookings Institution, 1981). For a recent simulation analysis of how tax reform might affect charitable giving that is based on these and other econometric results, see Lawrence B. Lindsey, "The Effect of the President's Tax Reform Proposal on Charitable Giving," *National Tax Journal*, vol. xxxix (March 1986), pp. 1-12. For a critique of these studies, see Bruce Davie, "Tax Rate Changes and Charitable Contributions," *Tax Notes* (March 11, 1985).

TABLE D-4. ANNUAL GROWTH OF TAX/TAXABLE INCOME: 1980-1983
(In percent)

	Expanded Adjusted Gross Income Group					
Total	Group 1 (1%)	Group 2 (2-5%)	Group 3 (6-25%)	Group 4 (26-50%)	Group 5 (51-95%)	
Total Income Tax						
1980-1981	13.5	3.7	11.0	16.0	15.9	26.8
1981-1982	-2.3	7.3	-3.3	-4.4	-3.1	-9.8
1982-1983	-1.2	6.4	-1.9	-3.0	-3.9	-3.3
1980-1983	9.5	18.5	5.3	7.6	7.9	10.6
Taxable Income						
1980-1981	10.2	3.4	6.9	10.2	10.9	15.6
1981-1982	4.4	16.1	3.6	3.5	4.5	1.2
1982-1983	4.9	8.6	5.5	4.5	4.2	4.1
1980-1983	20.7	30.3	16.8	19.2	20.7	21.8
Tax/Taxable Income						
1980-1981	3.0	0.3	3.8	5.3	4.5	9.7
1981-1982	-6.4	-7.5	-6.6	-7.6	-7.3	-10.9
1982-1983	-5.8	-2.0	-7.0	-7.2	-7.8	-7.1
1980-1983	-9.3	-9.1	-9.8	-9.8	-10.6	-9.2

APPENDIX E

THE GINI COEFFICIENT AND THE SUITS INDEX

The Gini coefficient is a commonly used measure of the equality of the distribution of income. The calculation of the coefficient is based upon the Lorenz curve, which graphs the cumulative proportion of income against the cumulative proportion of the population.¹ Figure 1 shows a Lorenz curve. The Gini coefficient is measured by dividing the area bounded by the 45 degree line and the Lorenz curve (Area A in the diagram), by the area of the triangle underneath the 45 degree line (Area A plus Area B). The coefficient thus ranges from 0 when income is equally distributed (each proportion of the population receives an equivalent proportion of income) to 1 at perfect inequality (all income is received by the wealthiest household). The greater the distributional inequality, the higher the Gini coefficient.

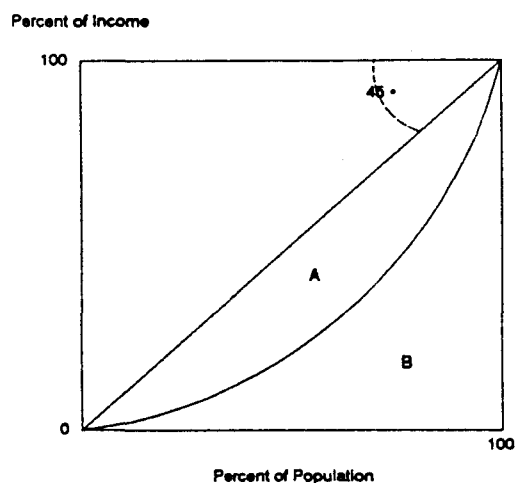
A Gini coefficient can be calculated for the distributions of both pretax income and after-tax income. The difference between the pretax and after-tax Gini coefficients is one measure of the degree to which a tax system is progressive (i.e., shifts the distribution of income in favor of members of the population with lower incomes.)² The larger the absolute difference between the after-tax and pretax Gini coefficients, the more redistributive is the tax system.

A measure of the equality of the distribution of tax payments can be constructed that is related to the Lorenz curve. For this measure, called the Suits

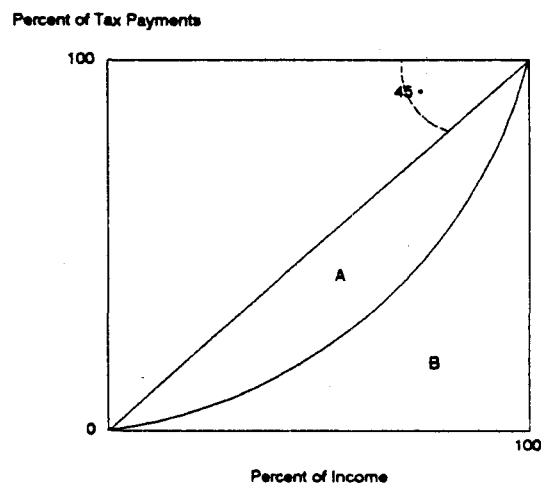
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1. For more information see Donald Kiefer, "Progressivity of the Federal, Individual Income Tax and Social Security Tax: 1974, 1980, 1981, and 1982," Congressional Research Service Report No. 84-134E (August 23, 1984).
 2. This measure is referred to as the Reynolds-Smolensky Index of distributional progressivity. See Donald W. Kiefer, "Distributional Tax Progressivity Indexes," *National Tax Journal* volume xxvii (December 1984), p. 498.

index, a tax concentration curve (analogous to the Lorenz curve) is plotted, showing the accumulated percentage of total income plotted against the accumulated percentage of the total tax burden. Figure 2 shows such a tax concentration curve. The Suits index is the area between the 45 degree line and the concentration curve as a fraction of the total area under the concentration curve (again, area A over the sum of area A and B).³ If the tax is proportional, this index has a value of 0. If the total tax burden is paid by those in the highest income bracket, the index has a value of 1. Thus, the more progressive the tax, the higher the Suits index.

Lorenz Curve



Tax Concentration Curve



3. This index is referred to as the Suits index, and is described in Daniel B. Suits, "Measurement of Tax Progressivity," *American Economic Review*, vol. 67, no. 4 (September 1977), pp. 747-752.

APPENDIX F

THE CBO CAPITAL GAINS EQUATION

The CBO capital gains equation is a slightly modified version of an equation estimated in a study of capital gains by the U.S. Department of the Treasury.¹ The CBO equation is:

$$\begin{aligned} \text{(F.1) } \dots \text{ RCG} = & -10.68 + 0.82 \cdot \text{RLINC} + 1.23 \cdot \text{PRICE} + 0.62 \cdot \text{RLSTKS} \\ & (1.51) \quad (1.81) \quad (4.36) \quad (3.60) \\ & + 2.37 \cdot \text{ATR}_t - 1.40 \cdot \text{ATR}_{t-1} \\ & (1.82) \quad (0.95) \end{aligned}$$

(t statistics are in parenthesis)

$$R^2 = 0.979 \quad \text{D.W.} = 1.611 \quad F = 225.854$$

Period of Estimation: 1954-1983

In Equation (F.1), RCG = realized capital gains (net long-term gains in excess of net short-term losses plus net short-term gains for returns with positive net gains); RLINC = personal income divided by the GNP deflator; PRICE = the price level, measured by the GNP deflator; RLSTKS = the end of year value of corporate shares held by individuals divided by the GNP deflator; ATR_t = the after-tax proceeds from capital gains realizations, defined as 1 minus the average marginal tax rate on capital gains; and ATR_{t-1} = the after-tax proceeds from capital gains realizations, lagged one year. All variables are in logarithms.

The average marginal tax rate variable is constructed by taking a weighted average of marginal tax rates on capital gains confronted by a taxpayer with

1. See U.S. Department of the Treasury, Office of the Secretary of the Treasury, Office of Tax Analysis, *Report to Congress on the Capital Gains Tax Reductions of 1978* (September 1985), pp. 175-177.

the average level of taxable income in each of six AGI classes: AGI less than \$50,000, AGI between \$50,000 and \$100,000; AGI between \$100,000 and \$200,000; AGI between \$200,000 and \$500,000; AGI between \$500,000 and \$1,000,000, and AGI greater than \$1,000,000. The weights are the amount of net long-term capital gains in each income class in 1983. For years other than 1983, the same weights are used but the taxable income of the representative taxpayer in each group is computed by multiplying 1983 taxable income by the ratio of personal income in that year to personal income in 1983. The marginal tax rate on gains is then calculated for a taxpayer at that level of income.²

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2. The Treasury, in contrast, constructs a marginal tax rate variable for taxpayers with income over \$200,000 in 1982 dollars. The weighted average marginal tax rate used in the CBO regression is between 5 and 15 percentage points lower than the "maximum" marginal tax rate used in the Treasury regression. It has more year-to-year variation than the Treasury measure because it takes account of changes in marginal tax rates for taxpayers below the top rate bracket and because taxpayers below the top income groups were not significantly affected by some provisions (such as the add-on minimum tax) that raised capital gains rates for upper-income groups in the 1970s.